ENERGY POLICY UPDATE

MARCH 10, 2014

The Energy Policy Update Electronic Newsletter is published by the Arizona Governor's Office Of Energy Policy and is provided free of charge to the public. It contains verbatim excerpts from international, domestic energy, and environment-related publications that are reviewed by Community Outreach Personnel. For inquiries, call 602-771-1143 or toll free to 800-352-5499. To register to receive this newsletter electronically or to unsubscribe, email Gloria Castro.

UPCOMING WEBINARS

U.S Dept. of Energy Webinar: National Fuel Cell Technology Evaluation Center
Tuesday, March 11, 2014
9:00 AM – 10:00 AM MST
Click here to register.

U.S Dept. of Energy Webinar: Electric Vehicle Winter 2014 Quarterly Discussion
1:00 PM – 2:00 PM EST
Wednesday, March 12, 2014
Click here to register.

State & Local Energy Efficiency Action Network Webinar: Setting Energy Savings for Utilities
Thursday, March 27, 2014
11:00 AM – 12:00 PM MST
Click here to register.

U.S Dept. of Energy Webinar: Best of the Clean Cities Tools & Resources
Monday, March 31, 2014
1:00 PM – 2:00 PM EST
Click here to register.

U.S Dept. of Energy Webinar: Engaging Building Occupants to Reduce Energy Use
Tuesday, April 1, 2014
3:00 PM – 4:00 PM EST
Click here to register.

CONTENTS

The Arizona Republic now has limited access. As such, links may or may not work.

ARIZONA-RELATED

ASU Research Focuses on Leaf Processes To Create Hydrogen Fuel

[Az Daily Star, Mar. 6] PHOENIX — Technology re-creating the processes of leaves could yield abundant renewable energy in the form of hydrogen fuel, according to a team of Arizona State University researchers. An artificial leaf that's under development will use solar energy to convert water to hydrogen. The key to making it work: developing a process that would help oxidize water to yield oxygen. "Hydrogen is an ideal fuel," said Ana Moore, a chemistry professor who is working on the project. "You can burn hydrogen and it's not dangerous. It burns cleanly." The project has been in development for five years as a part of BISfuel, an Energy Frontier Research Center funded by the U.S. Department of Energy with ASU's department of chemistry and biochemistry. "Fossil fuels will eventually run out," said Devens Gust, a chemistry professor who is also working on the project. "We have to have an alternative." The artificial leaf won't resemble a plant leaf at all, although ideally it will perform in the same way. ASU's leaf is a cell, a few inches across, composed of glass, wires and metal. Different elements are being tested to find a catalyst that oxidizes water. The chemical element iridium is currently being used, but the element is rare, making it impractical for long-term use. The goal is finding a cheap and abundant material to oxidize water, Gust said, something that would provide an alternative to using just solar power to fuel the process.

Catalina Foothills High School Continues Winning Streak at Science Olympiad

[Az Daily Star, Mar. 7] Catalina Foothills High School took first place at the Arizona Science Olympiad for the seventh year in a row. The competition, held March 1 at Glendale Community College, consisted of a series of individual and team events that encourage learning in biology, earth science, chemistry, physics, problem solving and technology. As the top ranking team, Catalina Foothills will go on to represent Arizona at the national tournament in May at the University of Central Florida in Orlando, Fla.

Group Responds to Opponents of Solar Subsidy in Cave Creek

Some suggest mailer tied to recall efforts

[Az Republic, Mar. 5] A clash between two groups over solar-energy rates in Arizona has flared up in Cave Creek. Last month, Arizona Free Enterprise Club, a conservative

advocacy group that believes solar customers earn too much credit for their excess power, targeted Vice Mayor Adam Trenk in a mailer for a resolution he sponsored opposing solar-rate increases in Cave Creek. The Town Council unanimously passed the non-binding document in July. Now, a group called TUSK, or Tell Utilities Solar Won't be Killed, has responded with a mailer of its own. The group supports net-metering subsidies for solar users and says the Free Enterprise flier is spreading false rhetoric in Cave Creek. The TUSK flier states, "If the monopoly and/or its allies insist on sending out more ridiculous rhetoric we'll be pulling the curtain back even more on their chicanery." Co-chairman Barry Goldwater Jr. said the purpose of the mailer is to show that Arizona Public Service Co. and its allies are continuing to try to squash rooftop solar competition. "Our mailer was sent to set the record straight and to let everyone know what's really going on with APS' shameless two-faced efforts to kill its competition and solar choice in Cave Creek, and around the state," Goldwater said. But some in Cave Creek are curious about the timing of this renewed battle.

Leaders Reach Out to Tesla CEO

Mayors invite Musk to Arizona in bid to land factory

[Az Republic, Mar. 6] Breaking days of silence on a potential multibillion-dollar deal in Arizona, a key Valley economic-development group has reached out to the head of Tesla Motors Inc. in an effort to sell him on selecting the state over three others for a electric-car battery factory. In a letter from the Maricopa Association of Governments made public Thursday, the mayors of Mesa and Avondale invited Elon Musk, Tesla's chief executive, to visit Arizona "so that you can see firsthand Arizona's outstanding business environment." The one-page letter is believed to be the first public acknowledgement by officials here that Tesla is considering Arizona for its proposed $5 billion "Gigafactory" that is expected to bring with it 6,500 jobs. It is signed by Mesa Mayor Scott Smith, who is running for governor, and by Marie Lopez-Rogers, the mayor of Avondale. Both chair committees within MAG. "What we wanted to show is there is a broad base of support for this," Smith said. He said he is aware of talks between the company and other officials in Arizona that have included details such as a timeframe for a decision, though he declined to divulge any such information shared with him. Arizona officials have been notably silent about the facility, in contrast to public comments from their counterparts in Nevada, New Mexico and Texas, all of whom are under consideration by Tesla as well. MAG's letter paints Arizona as a place with a "skilled workforce, business-friendly tax structure, and quality education system" that could "provide an ideal site for the new energy economy." Smith said officials like the Arizona Commerce Authority are honing more substantive details. Those would include taxes, incentives and possible locations to be made in private talks. By comparison, Texas officials have made no secret how badly they want Tesla's business there.

Senate OK's Tax Cut on Manufacturers To Spur Job Growth

[Az Daily Star, Mar. 6] PHOENIX — Manufacturers and smelters could soon be exempt from paying state sales taxes on electricity they buy. SB 1413, approved by the Senate Thursday, is part of an economic-development proposal by Gov. Jan Brewer. Aide Michael Hunter said Brewer believes the levy could be the difference between a company moving here or going elsewhere. After objections from the League of Arizona Cities and Towns, a provision requiring cities to also give up electric taxes was eliminated. Municipalities would have taken a combined $9 million hit. The measure still stands to cost the state $10 million. Bill sponsor Sen. Steve Yarbrough, R-Chandler, inserted language to narrow the definition of who is a "manufacturer" and gets the tax break and who does not. The final version excludes processing, fabricating, job printing, mining, generating electricity and operating a restaurant.

Solar Industry Hopeful That Leased Panels Won't Be Taxed

[Az Republic, Mar. 7] Solar industry officials see hope that a property tax will not hit the solar leasing market in Arizona as expected, citing discussions with the governor and lawmakers. The solar rooftop leasing industry had scheduled a protest at the state Capitol on Wednesday to oppose property taxes on leased solar panels that could kick in

later this year. But the protest has been cancelled. “Due to the progress that has been made with preventing a tax increase on tens of thousands of solar users in Arizona, we are postponing the protest,” said Jason Rose, a spokesman for a group called called TUSK, or “Tell Utilities Solar won’t be Killed.” “We certainly are reserving the right to return in numbers in the future,” he said. TUSK held large protests last year at the headquarters of Arizona Public Service Co. and at the offices of utility regulators to oppose a different fee on rooftop solar. The current debate is over property taxes. State law says that solar panels that generate power primarily used on site do not add value to property and are not included in the valuation for property tax purposes. However, the Arizona Department of Revenue last year interpreted that state law to mean that solar panels that are leased should be subject to valuation for tax purposes, because leased panels are not owned by the property owner.

Tucson Going After Tesla's 6,500 New Jobs

[Az Daily Sun, Mar. 9] The city of Tucson has made a formal proposal to become the home of a $5 billion “gigafactory” for lithium-ion batteries for electric cars. Tesla Motors Inc.’s planned 10 million-square-foot plant would need up to 1,000 acres of land and create about 6,500 jobs. Mayor Jonathan Rothschild said land within the city has been identified with access to the Union Pacific mainline and the interstates. He also said the city has tax incentives to add to whatever tax incentives are offered by the Arizona Commerce Authority to lure Tesla to the state. Rothschild said he could not disclose any other information on the city’s proposal.

USDA Drought Declaration Now Covers All of Arizona

[Associated Press, Mar. 7] PHOENIX — All of Arizona’s 15 counties are now designated by the U.S. Department of Agriculture as natural disaster areas for drought, making farmers and ranchers eligible for federal low-interest emergency loans. The latest designation by Agriculture Secretary Tom Vilsack covers Apache, Cochise, Coconino, Gila, Graham, Greenlee, La Paz, Maricopa, Mohave, Navajo and Yavapai counties. The other four counties — Pima, Pinal, Santa Cruz and Yuma — were eligible starting late last month. The state Agriculture Department says the federal designation is based on agricultural production losses. It says eligible farm operators have eight months to apply for the loans.

ALTERNATIVE ENERGY & EFFICIENCY

A Huge Solar Plant Opens, Facing Doubts About Its Future

[New York Times, Feb. 14] Nipton, CA – The Ivanpah solar power plant stretches over more than five square miles of the Mojave Desert. Almost 350,000 mirrors the size of garage doors tilt toward the sun with an ability to energize 140,000 homes. The plant, which took almost four years and thousands of workers assembling millions of parts to complete, officially opened on Thursday, the first electric generator of its kind. It could also be the last. Since the project began, the price of rival technologies has plummeted, incentives have begun to disappear and the appetite among investors for mammoth solar farms has waned. Although several large, new projects have been coming online in recent months — many in the last quarter of 2013 — experts say fewer are beginning construction and not all of those under development will be completed. “I don’t think that we’re going to see large-scale solar thermal plants popping up, five at a time, every year in the U.S. in the long-term — it’s just not the way it’s going to work,” said Matthew Feinstein, a senior analyst at Lux Research. “Companies that are supplying these systems have questionable futures. There’s other prospects for renewables and for solar that look a lot better than this particular solution,” he said, including rooftop solar systems that are being installed one by one on businesses and homes. Executives involved in Ivanpah — a venture among BrightSource Energy, NRG Energy and Google — say that once the facility proves that the technology can work, it will become easier to finance others, especially as repetition brings the cost down. When BrightSource and other companies asked NRG to invest in a second thermal project, said David Crane, NRG’s chief, he responded: “We’ve got $300 million invested in Ivanpah — let me see that work

for a few months and then we'll decide whether we want to be involved in more." At the same time, BrightSource has shifted its focus, pursuing markets overseas like China, South Africa and the Middle East and designing smaller plants involving one tower rather than Ivanpah's three.

PV Capacity in The Americas To Rise Tenfold by 2030

[Solar Industry Magazine, Mar. 4] The North and South American solar photovoltaic installed capacity will increase more than tenfold over the coming years, climbing from 13.1 GW in 2013 to 138.8 GW by 2030, says a new report from U.K.-based research and consulting firm GlobalData. The increase represents a compounded annual growth rate of 15%. According to the report, the Americas' power generation from PV installations will increase from 21 terawatt-hours (TWh) in 2013 to 234 TWh by 2030. In 2013, the U.S. held the majority share of the region's solar PV installed capacity, with 89.1%, followed by Canada and Brazil, with shares of 8.5% and 0.2%, respectively.

Hawaii Schools To Install 100 MW of Solar PV on Microgrids

[SolarServer.com, Apr. 10] The Department of Education in the U.S. state of Hawaii has partnered with Chevron Energy Solutions (San Francisco, California, U.S.) to launch a five-year sustainability program. This will include the installation of roughly 100 MW of solar photovoltaics (PV) and 25 MW of wind to power microgrids at schools. The multifaceted program will also feature "aggressive" energy efficiency measures and demand response. DOE does not expect the program to be run into utility Hawaiian Electric Companies' (HECO, Honolulu, Hawaii, U.S.) limits on PV generation due to the use of microgrids. "Ka Hei is a comprehensive program that goes well beyond a traditional facilities improvement project but rather, focuses on driving broad-based impacts and results for the Department of Education and the communities which it serves," notes Chevron Energy Solutions Regional Manager Brian Kaleoha. The program will support goals set by the state in 2008 to achieve 70% clean energy by 2030.

Wind Power Continues To Grow As Source of American Electricity

In Iowa and South Dakota, more than one-quarter of electricity is sourced from instate wind turbines.

[UPI.com, Mar. 6] WASHINGTON – According to the latest numbers from the Energy Information Administration at the Department of Energy, wind power is the fifth largest electricity source in the U.S., and accounts for nearly one-third of all new electricity capacity created over the last five years. In Iowa and South Dakota, more than one-quarter of electricity is sourced from instate wind turbines. "Wind energy continues to make inroads as a major contributor to the US power mix," Elizabeth Salerno, vice president of data analysis for the American Wind Energy Association, told CleanTechnica. "The electricity generated by American wind power has more than tripled since 2008 not only due to significant growth in new wind projects but also technology innovation leading to more productive wind turbines." Earlier this week, President Obama revealed his 2015 budget proposal, which included millions of dollars in renewable energy investments. The president and his administration have regularly pledged their commitment to growing wind energy technology via economic incentives and research grants. In addition to federal investments, Obama also wants Congress to make the renewable energy Production Tax Credit permanent, while slashing subsidies for the oil and gas industries.

Wood Foam May Be A New Form of Green Home Insulation

[Gizmag.com, Mar. 7] Insulating your home may help the environment by lowering your energy usage, but unfortunately the petroleum-based foam that's typically used *as* insulation isn't all that eco-friendly itself. Researchers at Germany's Fraunhofer Institute for Wood Research, however, have developed a reportedly greener alternative that they claim works just as well – it's foam made from wood. To produce the foam, wood particles are first ground so small that they form into a slimy solution. A gas is then added to that slime, causing it to take on a frothy consistency. Once that froth hardens –

a process that is "aided by natural substances contained in the wood" – a dry, porous foam is the result. The finished product can take the form of either rigid foam boards, or flexible mats. The slime can also be converted into foam via induced chemical reactions. "We analyzed our foam products in accordance with the applicable standards for insulation materials," said Fraunhofer's Professor Volker Thole. "Results were very promising; our products scored highly in terms of their thermo-insulating and mechanical properties as well as their hygric, or moisture-related, characteristics." While other wood-based insulating mats and wools do already exist, they have a tendency to shed fibers and to compress in the middle as they settle.

ENERGY/GENERAL

Canadian Oil Will Take New Route Across U.S.

[NY Times, Mar. 6] OTTAWA — Canada's energy producers received a rare boost in their efforts to expand the market for oil sands bitumen on Thursday when the country's National Energy Board approved the reversal of a Canadian pipeline. The decision will allow diluted bitumen and conventional oil from Canada's west to travel across the United States through pipelines owned by Enbridge to the border at Sarnia, Ontario. From there, Enbridge will take it to refineries in Quebec through a reversed pipeline known as Line 9. The change will allow refineries that rely on overseas oil in Montreal, where the pipeline ends, and Quebec City to use both conventional oil and oil sands bitumen from Western Canada. The ruling comes at a time when Enbridge's rival, TransCanada, is struggling to get approval from the Obama administration for its Keystone XL pipeline, which would carry oil sands production to the Gulf Coast. Enbridge also is in negotiations with native groups over a new oil sands pipeline to the west coast of Canada. The reversal of the pipeline and the expanded market it would provide for oil sands bitumen drew strong opposition from many environmental groups and some communities along its route. With upgrades, the reversed pipeline will carry up to 300,000 barrels a day, which Enbridge, without offering specifics, has said will be mainly light crude oil.

Report Calls for Better Backstops to Protect Power Grid from Cyberattacks

[New York Times, Mar. 2] WASHINGTON — Despite rising anxiety over the possibility of a cyberattack on the power grid, the industry and government are not set up well to counter the threat, according to a report produced by leading energy security experts. Companies are reluctant to share information with one other, a critical step in reducing vulnerability, because they are afraid of being accused of failing to comply with cybersecurity rules, committing antitrust violations or giving away proprietary information, the report found. And the federal rules intended to protect the electric system from cyberattack are inadequate because they do not give companies an incentive to continually improve and adapt to a changing threat, according to the report, which was released on Friday.

U.S. Hopes Boom in Natural Gas Can Curb Putin

[NY Times, Mar. 5] WASHINGTON — The crisis in Crimea is heralding the rise of a new era of American energy diplomacy, as the Obama administration tries to deploy the vast new supply of natural gas in the United States as a weapon to undercut the influence of the Russian president, Vladimir V. Putin, over Ukraine and Europe. The crisis has escalated a State Department initiative to use a new boom in American natural gas supplies as a lever against Russia, which supplies 60 percent of Ukraine's natural gas and has a history of cutting off the supply during conflicts. This week, Gazprom, Russia's state-run natural gas company, said it would no longer provide gas at a discount rate to Ukraine, a move reminiscent of more serious Russian cutoffs of natural gas to Ukraine and elsewhere in Europe in 2006, 2008 and 2009. The administration's strategy is to move aggressively to deploy the advantages of its new resources to undercut Russian natural gas sales to Ukraine and Europe, weakening such moves by Mr. Putin in future years. Although Russia is still the world's biggest exporter of natural gas, the United States recently surpassed it to become the world's largest natural gas producer, largely

because of breakthroughs in hydraulic fracturing technology, known as fracking.

INDUSTRIES AND TECHNOLOGIES

Batteries May Vie with U.S. Oil Boom as Energy Changer

[Bloomberg, Mar. 6] The rapid development of rooftop solar and battery storage technology could be as transformative to the economy and modern life as the U.S. oil and gas boom, according to U.S. Energy Secretary Ernest Moniz. The rapid development of rooftop solar and battery storage technology could be as transformative to the economy and modern life as the U.S. oil and gas boom, according to U.S. Energy Secretary Ernest Moniz. The rapid development of rooftop solar and battery storage technology could be as transformative to the economy and modern life as the U.S. oil and gas boom, Energy Secretary Ernest Moniz said. “It’s pretty dramatic,” Moniz said yesterday in an interview with Bloomberg News at the IHS CERAWeek conference in Houston. “They are growing very, very fast.” Batteries allow customers with solar panels to store energy during the day and then tap the excess overnight when the sun goes down. The widespread use of electric vehicles could reshape the development of cities, and applying the same battery storage technology to transform the U.S. energy system has “huge potential,” Moniz said. Battery storage advances could threaten the 100-year-old monopoly utility business model that books about $360 billion in annual power sales. An increasing number of customers are reducing their dependence on the grid, turning to solar panels and battery storage as a way to reduce their bills.

Energy Department Announces $10 Million for Innovative Commercial Building Technologies and Unveils New Commercial Buildings 101 Video

[U.S. Dept. of Energy – EERE website, Mar. 5] The Energy Department today announced a $10 million funding opportunity to help demonstrate and deploy energy efficiency technologies for commercial buildings, including projects that will bring next generation building systems and components to a broader market faster – helping to save building owners and businesses money by saving energy. The Department also released a new video in its Energy 101 series highlighting how commercial buildings can incorporate whole-building design and innovative technologies to improve energy performance. These proven strategies, including daylighting, shading, and plug and process loads, support the Administration’s Better Buildings Initiative, which is aimed at making commercial buildings 20% more efficient by 2020. Currently, commercial buildings consume more than 18 quadrillion British thermal units (quads) of primary energy use annually, or about 18% of all the energy used in the nation in 2012. If building owners adopt these cost-effective technologies, the annual energy consumption of commercial and industrial buildings could be reduced by 6 quads. This funding opportunity supports the demonstration and deployment of technologies to reduce energy use and carbon emissions in commercial buildings: sub-metering; plug load strategies; open refrigerated display case retrofits; daylighting; shading; advanced compressor rack and refrigerant systems; and retro-commissioning strategies and technologies. The funding will support the testing and validation of technology performance in real buildings, as well as the creation of materials to help building owners, designers, service providers, and energy efficiency program managers to gain a broader understanding of these energy-saving solutions.

Manufacturers See Best Business Outlook in Two Years

[Business Journal, Mar. 10] Manufacturers are more optimistic about their prospects than they've been in two years, according to a new survey by the National Association of Manufacturers. The quarterly survey found that 86.1 percent of manufacturers think the business outlook is positive or somewhat positive. That's their brightest outlook since the first quarter of 2012. The biggest drivers for growth will be an improving economy, new product development, increased efficiencies in the production process and exports, manufacturers said. NAM also said December's budget deal, which removed the specter of a government shutdown for two years, also contributed to growing optimism among its members. The federal government, however, also continues to create problems for

manufacturers, according to the survey. Nearly 80 percent said an unfavorable business climate due to taxes, regulations and government uncertainties as a major business challenge. Rising health care and insurance costs were the next most-cited challenge.

MIT's Liquid Metal Stores Solar Power Until After Sundown

[Bloomberg, Mar. 6] A 40-foot trailer loaded with 25 tons of liquid metals may be the solution to the renewable-energy industry's biggest challenge: making sure electricity is available whenever it's needed. A Boston-area startup founded by MIT researchers is working to turn this new concept into a commercially viable product, liquid-metal batteries that will store power for less than $500 a kilowatt-hour. That's less than a third the cost of some current battery technologies. The technology promises an alternative to the massive pumped-water systems that make up 95 percent of U.S. energy-storage capacity. At that price, developers will be able to build wind and solar projects that can deliver power to the grid anytime, making renewable energy as reliable as natural gas and coal without the greenhouse-gas emissions.

LEGISLATION AND REGULATION

President's 2015 Budget Includes Money for Energy Efficiency, Renewable Energy

[EL&P, Mar. 5] U.S. Secretary of Energy Ernest Moniz detailed President Barack Obama's $27.9 billion Fiscal Year 2015 budget request for the Department of Energy. Secretary Moniz said the president's budget continued a commitment to a low-carbon future, improved energy infrastructure resilience, U.S. science and technology leadership and stronger national security. This budget request represents a 2.6 percent increase above the FY 2014 enacted level, reflecting the importance of the DOE's core focus areas — energy and science, nuclear security and management and performance. The budget request also reflects a reorganization of the DOE into three undersecretariats, mirroring the DOE's focus areas. "The United States remains the global leader in energy, science and security, building on its longstanding commitment to innovation," said Secretary Moniz. "The president's budget request for the DOE sustains this commitment for future generations — in clean energy, in frontier scientific discovery and in global nuclear security."

WESTERN POWER

California ISO Updated Roadmap Advances Electric Vehicle Plan

[EL&P, Mar. 6, 2014] The California Independent System Operator Corporation (California ISO) has released an updated roadmap that will help guide electric vehicle (EV) integration into the power grid as well as support California Gov. Edmund G. Brown Jr.'s 2012 executive order to get 1.5 million zero-emission vehicles on California roads by 2025. The California Vehicle-Grid Integration Roadmap: Enabling Vehicle-Based Grid Services is among one of the first strategies outlined in the governor's ZEV action plan published in March 2012. This strategy along with others in the action plan will be featured at the upcoming governor's Office Summit on Zero Emission Vehicles. The ISO roadmap outlines the strategies that lead to implementing the technologies and policies that would support electric vehicles providing valuable services that contribute to the reliable operation of the power grid. This includes policies that promote smart charging and vehicle-to- grid integration.

Future of Texas' Electric Grid Debated After Conservation Warning

[Houston Business Journal, Mar. 6] As Texas' population and energy sector continue to surge, debate has escalated on the future of the state's electric grid and how to keep the lights on in homes while demand grows. "Texas is, in a way, a victim of its own success," said Manu Asthana, Houston-based Direct Energy Residential president, during IHS Energy CERAWeek Thursday. To follow more coverage during CERAWeek, click here. ERCOT manages the electric grid for an overwhelming 85 percent of Texas and reported a March record of a peak demand of 54,549 megawatts that surpassed the previous 2002 record by more than 11,500 megawatts. The debate is whether Texas should keep an energy-only electric market, which carries greater blackout risks, or switch to a

capacity market that offers more energy reserves, but involves consumers potentially paying more. "What will Texas accept?" ERCOT Vice President Brad Jones said. Electricity generators want a capacity market to pay them for their total energy capacity and not just production that is in place in much of New England and the Northeast.

Solar Farm Faces Regulatory Process

[The Pueblo Chieftain, Mar. 6] Pueblo, CO – Water usage is one of the myriad topics that will be addressed in Pueblo County's regulatory process for a 900 acre solar farm south of Pueblo. But representatives from the company that wants to build the power plant said the water use will be minimal. Sam Sours, regional development director for Community Energy Solar, said Wednesday that it's anticipated the amount of water used by the project will be about the same as a single-family home. "There's no continuous cycling of water in a photovoltaic plant," Sours said. "The technology literally converts the sun's photons directly into energy photons." Sours said the company's biggest use of water will come from periodic cleaning of the panels. The proposal from Community Energy Solar and Xcel Energy calls for panels made up of 450,000 photovoltaic cells that will move in tandem to track the sun's movement across the sky. The array is proposed for property southeast of Xcel's Comanche power plant.

Tres Amigas, Wind Project Ink Agreement

[Energy Prospects West, Mar. 4*]* Tres Amigas, developer of the proposed "superstation" near Clovis, N.M., that would link the three U.S. power grids, has announced an agreement with a proposed 500-MW wind project in northeastern New Mexico. According to a press release from Tres Amigas, the 25-year agreement with Broadview Energy LLC -- Tres Amigas' first customer -- will begin at the end of 2015 and enable the build-out of the wind project, which has been under development since 2011 by Minneapolis-based National Renewable Solutions.

ARIZONA STATE INCENTIVES/POLICIES

ARIZONA COMMERCE AUTHORITY (ACA)

- Angel Investment Tax Credit Program **-** The main objective of the Angel Investment program is to expand early stage investments in targeted Arizona small businesses. The program accomplishes this goal by providing tax credits to investors who make capital investment in small businesses certified by the Arizona Commerce Authority (ACA). To view the list of businesses that have been certified under this program please click here. LEARN MORE

- Arizona Innovation Accelerator Fund - The Arizona Innovation Accelerator Fund Program is an $18.2 million loan participation program funded through the U.S. Department of Treasury's SSBCI and managed by the Arizona Commerce Authority. The goal of this program is to stimulate financing to small businesses and manufacturers, in collaboration with private finance partners, to foster business expansion and job creation in Arizona. LEARN MORE

- Arizona Innovation Challenge - The Arizona Innovation Challenge is an investment in the minds of talented entrepreneurs in Arizona and around the world. The ACA will award $1.5 million to the most promising technology ventures that participate in the Challenge (awards may range from $100,000 to $250,000).
  LEARN MORE

- AZ Fast Grant - Enables Arizona-based technology companies to initiate the commercialization process. Total funds available for this grant round are $175,000. Maximum awards of $5,000 and $20,000 will enable companies to accomplish one of four scopes of work. LEARN MORE

- AZ Step Grant - Grant funding from the U.S. Small Business Administration (SBA) with matching funds contributed by the Arizona Commerce Authority

(ACA) offering a number of services and tools to Arizona small businesses as they go global for the first time with sales or enter new, international markets. LEARN MORE

- Commercial/Industrial Solar Energy Tax Credit Program - The primary goal of the Commercial/Industrial Solar Energy Tax Credit Program is to stimulate the production and use of solar energy in commercial and industrial applications by subsidizing the initial cost of solar energy devices. The program achieves this goal by providing an Arizona income tax credit for the installation of solar energy devices in Arizona business facilities. LEARN MORE

- Healthy Forest - The primary goal of the Healthy Forest Enterprise Incentives Program is to promote forest health in Arizona. The program achieves this by proving incentives for certified businesses that are primarily engaged in harvesting, processing or transporting of qualifying forest products. LEARN MORE

- Job Training Program offers job-specific reimbursable grants for employers creating new jobs or increasing the skill and wage level of their current employees. Deadline: Year Round. LEARN MORE

- Renewable Energy Tax Incentive Program offers a refundable income tax credit and property tax reduction to companies in solar, wind, geothermal and other renewable energy industries who are expanding or locating a manufacturing or headquarters operation in Arizona. The tax credit is up to 10% of the total qualified investment amount and the property tax benefit can reduce a company's property taxes by up to 75%. Deadline: Year Round. LEARN MORE

- Research and Development Tax Credit is an Arizona income tax credit for increased research and development activities conducted in this state. Starting in 2010, a qualifying company may be eligible to claim a partial refund of its current year excess R&D credit. Applicants may apply at the end of their tax year but prior to filing a tax return with Revenue. LEARN MORE

Quality Jobs Tax Credit Program - The primary goal of the Quality Jobs Tax Credit program is to encourage business investment and the creation of high-quality employment opportunities in the state. The program accomplishes this goal by providing tax credits to employers creating a minimum number of net new quality jobs and making a minimum capital investment in Arizona. LEARN MORE

- **Bonds Administered by the Arizona Commerce Authority**
  - Private Activity Bonds (PAB) - Tax exempt bond financing, for federal purposes, offers an alternative financing mechanism for certain projects. LEARN MORE
  - Qualified Energy Conservation Bonds (QECB) - Tax credit bonds are available as an alternative financing mechanism for certain green projects. LEARN MORE

- **Federal Programs**
  - **Small Business Innovation Research (SBIR) Program -** SBIR is a competitive program that encourages small businesses to explore their technological potential, as well as, providing incentive to profit from its commercialization. LEARN MORE
  - **Small Business Technology Transfer (STTR) Program** - STTR is an important small business program that expands funding opportunities to meet the nation's scientific and technological challenges in the 21st century. LEARN MORE

- **Work Opportunity** - The Work Opportunity Tax Credit (WOTC) is a federal tax credit of up to $9,000 that Congress provides to private-sector businesses for hiring individuals from nine target groups who have consistently faced significant barriers to employment. LEARN MORE

- Pollution Control Tax Credit - Provides a 10 percent income tax credit on the purchase price of real or personal property used to control or prevent pollution.

- Renewable Energy Production Tax Credit - An income tax credit awarded to utility-scale generation systems based on the amount of electricity produced annually for a 10-year period using solar or wind energy. Questions can be directed to Georganna Meyer (602-716-6927) or Elaine Smith (602-716-6924).

- **Sales Tax Exemption for Machinery and Equipment**
  Exemptions are available for:

  1. Machinery or equipment used directly in manufacturing, see ARS 42-5159(B)(1).
  2. Machinery, equipment or transmission lines used directly in producing or transmitting electrical power, but not including distribution, see ARS 42-5159(B)(4).
  3. Machinery or equipment used in research and development, see ARS 42-5159(B) (14).

Questions can be directed to Christie Comanita (602-716-6791).

- Solar Liquid Fuel Tax Credit - Income tax credits are available for research and development, production and delivery system costs associated with solar liquid fuel. Questions can be directed to Georganna Meyer (602-716-6927) or Elaine Smith (602-716-6924).

- Database of State Incentives for Renewables and Efficiency (DSIRE)
  - Arizona Incentives/Policies
  - Federal Incentives/Policies
  - Solar Policy News - DSIRE provides summaries of current solar policy developments and an archive of past solar policy developments. Current solar news appears below the news archive, which is searchable by several criteria.

GRANTS

The following solicitations are now available:
(Click on title to view solicitation)

- Solar Manufacturing Technology 2 (SolarMat 2) - Concept Paper Submission Deadline: 3/12/2014 5:00 PM ET. Full Application Submission Deadline: 4/30/2014 5:00 PM ET

- Sunshot Incubator Program Round 9 - Close Date: March 13, 2014

- National Incubator Initiative for Clean Energy (NIICE) - Close Date: March 21, 2014

- Next Generation Photovoltaic Technologies III - Close Date: March 24, 2014

- FY 2014 Vehicle Technologies Program Wide Funding Opportunity Announcement - Close Date: April 1, 2014

- Renewable Carbon Fibers - Concept Papers Submission Deadline: 03/03/2014 at 5:00 P.M. Eastern Standard Time. Submission Deadline for Full Applications: 04/11/2014 at 5:00 P.M. Eastern Standard Time
- Geothermal Play Fairway Analysis - Close Date: April 11, 2014
- U.S. Wind Manufacturing: Taller Hub Heights to Access Higher Wind Resources and Lower Cost of Energy - Close Date April 14, 2014
- Building Energy Efficiency Frontiers and Incubator Technologies (BENEFIT) - 2014 - Close Date April 21, 2014
- Clean Energy Manufacturing Innovation Institute for Composites Materials and Structures - Close Date: April 22, 2014
- Integrated Enhanced Geothermal Systems (EGS) Research and Development - Close Date April 30, 2014
- Low Temperature Geothermal Mineral Recovery Program - Close Date May 2, 2014
- Commercial Building Technology Demonstrations – Concept Paper Submission Deadline: March 31, 2014. Full Application Submission Deadline: May 19, 2014.
- Bioenergy Technologies Incubator - Close Date: May 23, 2014
- Advanced Fossil Energy Projects - Solicitation Number: DE-SOL-0006303 - Expiration Date 11/30/2016
- Sunshot "Race to the Roof" Initiative - Registration Due October 31,2014
- Repowering Assistance Program – Ongoing
- Rural Business Enterprise Grants - Ongoing
- Rural Business Opportunity Grants – Ongoing
- Sustainable Agriculture Research and Education Grants - Ongoing
- Renewable Energy RFP's - Solicitations for Renewable Energy Generation, Renewable Energy Certificates, and Green Power – Various Deadlines
- U.S. Dept. of Agriculture - Rural Development Grant Assistance

ENERGY-RELATED EVENTS

2014

- Solar O&M North America
  March 25-26, 2014 San Francisco, CA
- Clean Tech Future Conference III
  April 9, 2014 Phoenix, AZ
- International Geothermal Energy Forum
  April 23-24, 2014 Washington, DC
- 11th Annual Construction in Indian Country Nat'l., Conference

April 28-30, 2014 Chandler, AZ

- VerdeXchange Arizona
  April 30-May 2, 2014 Phoenix, AZ
- AWEA Windpower 2014
  May 5-8, 2014 Las Vegas, NV
- Beyond the Border: Arizona Trade Mission to Mexico City & Guadalajara
  May 12-16, 2014
- Sunshot Grand Challenge Summit 2014
  May 19-22, 2014 Anaheim, CA
- Native American Economic Development & Energy Projects Conference
  June 16-17, 2014 Anaheim, CA
- 32nd Annual West Coast Energy Management Congress
  June 25-26, 2014 Seattle, WA
- National Geothermal Summit
  August 5-6, 2014 Reno, NV
- NEW! HTUF 2014 National Meeting - The Forum for Action in High-Efficiency Commercial Vehicles
  September 22-24, 2014 Argonne, National Lab Argonne, IL
- Geothermal Energy Expo
  September 28-October 1, 2014 Portland, OR
- ASU Sustainability Series Events
- Green Building Lecture Series
  Granite Reef Senior Center Scottsdale, AZ